The potential of combinations of drug-loaded nanoparticle systems and adult stem cells for glioma therapy

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Résumé en anglais	The prognosis of patients with malignant glioma remains extremely poor, despite surgery and improvements in radio- and chemo-therapies. Nanotechnologies hold great promise in glioma therapy as they protect the therapeutic agent and allow its sustained release. However, new paradigms permitting tumor-specific targeting and extensive intratumoral distribution must be developed to efficiently deliver nanoparticles. Modifications and functionalizations of nanoparticles have been developed to specifically track tumor cells. However, these nanoparticles have yielded few clinical results due to intra-patient heterogeneity and inter-patient variability. Stem cells with a specific tropism for brain tumors could be used as delivery vehicles for nanoparticles. Indeed, these cells have a natural tendency to migrate and distribute within the tumor mass and they can also incorporate nanoparticles. Stem cell therapy combined with nanotechnology could be a promising tool to efficiently deliver drugs to brain tumors.
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